

Swartz indicted for JSTOR theft

Digital activist gained access through MIT network drops

By Connor Kirschbaum
STAFF REPORTER

Aaron H. Swartz is an accomplished 24-year-old by anyone's standards. He co-authored the now widely-used RSS 1.0 specification at age 14, was one of three owners of the massively popular social news site Reddit, and recently completed a fellowship at the Harvard Ethics Center Lab on Institutional Corruption.

On Jan. 6, 2011, Swartz allegedly entered the basement of MIT's Building 16, using his white bicycle helmet as a mask to hide his identity from passersby. A federal indictment, unsealed on July 19, describes his entering a restricted network wiring closet, retrieving a laptop and external hard drive he had hidden there under a cardboard box weeks before, and cautiously stepping out of the wiring closet with his makeshift mask in place.

According to the indictment, Swartz's laptop had been using MIT's network to rapidly download articles from JSTOR. JSTOR is an archive of academic journals to which many universities, including MIT, pay large amounts of money for access. The indictment

describes these events as the final phase of Swartz's three-month JSTOR downloading operation, bringing his total count of acquired JSTOR articles to 4.8 million. MIT valued that information at \$50,000, according to the Cambridge Police incident report.

Swartz's intention, the indictment claimed, was to upload all of the documents to a peer-to-peer file-sharing site, where anyone could access them for free.

He never got the chance. Within two hours of fleeing Building 16, Swartz was captured by Secret Service Agent Michael Pickett, in what was the culmination of three months of detective work by MIT Information Services & Technology, the MIT and Cambridge Police Departments, and the United States Secret Service.

"Ghost laptop"

Aaron Swartz's alleged JSTOR downloading operation was far less daring in its early stages. The indictment states that it started on Sept. 24, 2010 — three months before his arrest — with the purchase of an Acer laptop from a local store. The

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Barbecue gathers prefrosh, alums

MIT Club of Boston throws annual party at Sidney-Pacific



JOANNA KAO—THE TECH

MIT alumni and current students line up on Sunday at the MIT Club of Boston (MIT COB) barbecue to grab food off the grill prepared by MIT COB volunteers. Over 300 people attended, and nearly 70 people volunteered for the annual event held in the courtyard of the Sidney-Pacific Graduate Residence.

By Joy E. Lee
STAFF REPORTER

A range of generations of the MIT community gathered at Sidney-Pacific for the annual barbecue of the MIT Club of Boston this past Sunday.

Alumni, their children, current students, and incoming freshmen mingled amid food and activities under the hot summer sun. The club sponsored the event for prefrosh and MIT affiliates in the greater Boston area, providing activities for children as

well as opportunities for alumni to reconnect with each other and to meet current students.

While most of the current undergraduate students who attended

Barbecue, Page 12

NEWS ANALYSIS

Court rules for NIH in stem cell case

Embryonic stem cell research can continue, Sherley may appeal

By John A. Hawkinson
STAFF REPORTER

The latest battle over human embryonic stem cell research is over, and the National Institutes of Health has won — the research can continue. The war can still go on with appeals, potentially as high as the Supreme Court, but researchers are unlikely to face court-

ordered prohibitions on research as that multi-year process continues.

Last week Wednesday, the United States District Court for the District of Columbia dealt a decisive victory to the NIH. Chief Judge Royce C. Lamberth ruled in favor of the NIH and human embryonic stem cell (hESC) researchers. The losers were adult stem cell researchers James L. Sherley and Theresa

A. Deisher, who had argued that government funding of human embryonic stem cell research violated a congressional appropriations rider (the Dickey-Wicker amendment) that bans funding "research in which a human embryo or embryos are destroyed."

The case has twisted in and out of

Stem cells, Page 14

The Nissan Leaf

Is electric the new gas?

Leaf, Page 6



New Building Services tool on MIT Mobile App allows for easy work order submissions

The MIT Mobile App service, available for the iOS and Android platforms as well as the most recent feature phones, has a new widget for the MIT Department of Facilities. The new Building Services tool allows users to easily report on-campus maintenance issues, such as problems with leaks, lighting, and locks. The widget can mark the problem site by detecting a user's current location using GPS, or the user can select a building or area from a list. The user also has the option to upload a photo of the problem. The widget takes those data and submits a work order to the Department of Facilities. The new widget "allows our customers to report things as they see them," said Ruth T. Davis, manager of communications for the Department of Facilities.

The primary way to submit work orders and on-campus maintenance issues will continue to be at the Facilities work order webpage, http://web.mit.edu/sapweb/PS1/facilities_home.shtml. Problems can also be submitted to Facilities by emailing txtdof@mit.edu or calling (617) 253-4948.

—Joanna Kao

IN SHORT

Microsoft Office Professional is now available for students on a single personal machine. Downloads are available at <https://msca.mit.edu/>.

MIT's chapter of Delta Kappa Epsilon is being sued by Belfour Inc, a property restoration and repair service company.

The MIT Student Extended Insurance Plan has changed to provide more benefits for students. Check http://medweb.mit.edu/healthplans/student/student_plan.html for details.

MIT was ranked No. 1 in six engineering categories in the QS World University Ratings this past month.

More flexible reimbursement choices are now available on the SAPweb website for MIT expenses. Check http://web.mit.edu/sapwebss/PS1/money_home.shtml.

No taxes next weekend! Statewide tax free weekend is August 13–14.

Send news information and tips to news@tech.mit.edu.

A TASTE OF AFRICAN CUISINE

Baraka Café provides tender dishes without costing an arm and a leg. **ARTS, p. 16**

DIVERSITY IS HERE TO STAY

Terrorists must stop distorting religion to justify their actions. **OPINION, p. 5**

WHEN PATRIOTISM STRIKES

Captain America misses the mark. **ARTS, p. 16**



A BIRD'S-EYE VIEW

Srikanth journeys to the roof of the Green Building to capture a stunning panorama for this issue's Institute Double Take. **CAMPUS LIFE, p. 8**

DEMONICALLY DIFFICULT

Demon's Souls is a challenging, engrossing journey full of death. **CAMPUS LIFE, p. 8**

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CAR REVIEW

The Nissan Leaf: An improbable electric future

Solidly constructed, but poorly adapted to American lifestyle

By David M. Templeton
CONTRIBUTING EDITOR

I'm a fan of Formula One racing, the kind of guy that has seen every episode of the BBC's Top Gear ... six times. My idea of wealth is having a 10-car garage. It is with a heavy heart that I recognize a sad fact of life: in order to allow the weekend indulgence of driving a fast, gasoline-powered car, we're all going to have to start driving motors on the weekdays that do not consume fossil fuels. It is thus, ironically, that the widespread adoption of alternative-fuel vehicles will save the enthusiasts' 500-horsepower sports car.

This doesn't mean that going to work or picking up groceries needs to be the equivalent sensual experience of being locked in a white, padded room. In theory, in order for alternative fuel cars to take off, they should have as close of a driving experience to today's modest family hatchback as possible; buyers shouldn't feel like they are taking a step down in enjoyment for a step up in environmentalism. Alternative-fuel cars should match our current lifestyles and be affordable to boot. It is with this mindset that I attacked a test drive of the all-electric Nissan Leaf.

A Nissan representative came right out and told me that they're on a mission to win hearts and minds, not necessarily forge immediate sales. Many fear the Leaf is an ag-

grandized golf cart and that it is not suitable as more than a city runabout. In 2011, it turns out that the former is false, but the latter is true.

The first thing you notice when you get in the Leaf is that it is like every other small, modern, modest family hatch you've ever been in. There is rear legroom to seat five and enough room in the trunk for a serious excursion to Costco. Satellite navigation is standard, along with a bluetooth sound system. Upholstery is predictably cloth, but the seats are comfortable enough. The car starts with the press of a button; authentication is handled by the proximity dongle in your pocket.

It is after pressing the starter button that you notice the truth of the vehicle you are in: lithium polymer batteries under the front seats power up the accessories, and the engine is silent. The stubby gear knob allows you two selections of forward drive — regular and "Eco," which delays the throttle response to ease you into a more relaxed and engery-saving driving style. The electric motor has a nearly flat torque curve, allowing the single gear ratio to move the car efficiently from a standing start to beyond highway speeds (topping at 93 mph). Regenerative braking keeps your mileage up in stop-and-go driving.

So far, so good. The Leaf is definitely not a golf cart; it is a real car. Give it the beans, and



DAVID M. TEMPLETON—THE TECH

Battery temperature gauge on left; battery capacity gauge on right. More interesting is the top-center gauge, which fills to the right when energy is being spent by the motor, and to the left when it is being regenerated by braking. A more in-depth analysis of where the power is going can be found on the center console screen.

you can make the tires squeal briefly. Disc brakes stop you quickly, and the steering is fairly responsive. So what's the problem? The problem isn't the car — it's the context it's living in.

Gas stations with electric chargers are few and far between. Workplaces, parking lots, and parking garages with chargers are

equally sparse. (MIT Facilities did not respond to a request for information about campus charging accommodations.) This functionally limits your range from the Boston area to Worcester and maybe a run to New Hampshire for discount imbibements. The Leaf will not take you to New York City — even one way — unless you are a hypermiler.

Charging from a standard 120VAC 15A outlet is an overnight affair at best. 240VAC chargers can be installed for a hefty fee at your home and can charge the car 80 percent in 2-3 hours. 480VDC chargers can hit 80 percent in 30 minutes, but require the electrical service of a commercial building. In an urban community like Cambridge, where most people park curbside and landlords won't allow 240V-charger installations, the thought of hundreds of power cables spanning the sidewalks at night seems like an improbable electric future.

The Leaf is a good runabout, a perfect vehicle for companies like Zipcar, and a candidate for future taxis. Environmentalists love the zero emissions. But it is not ready for the masses: the Leaf does not fit the road-tripping American lifestyle. It is also dependent on a clean electric grid in order to fully realize the zero CO₂ emissions.

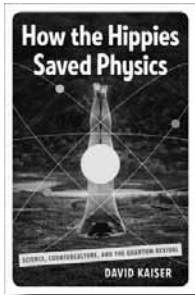
The Leaf is an important stepping stone to the alternative fuel future. But quick-charge batteries and very high power chargers (over 50kW) at every gas station and at home are the only way to make that future electric. There is still some science to be done with hydrogen fuel cell technology, and hydrogen filling stations are almost nonexistent outside of southern California, but the 5-minute fill up time fits the American way. Look for hydrogen to power the roads in 25 years and save the planet — and the gasoline-powered sports car.



DAVID M. TEMPLETON—THE TECH

The Leaf's charging panel, underneath the Nissan badge on the front. SAE-J1772 inlet (right) for everyday AC charging, and JARI/CHAdeMO inlet (left) for high-voltage DC charging.

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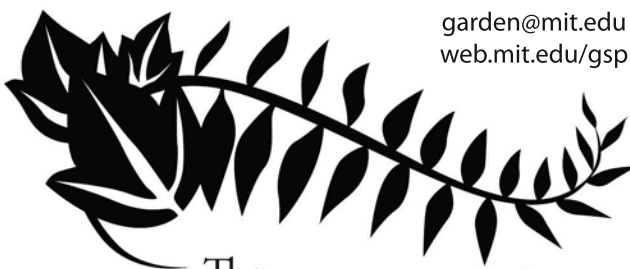
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garden@mit.edu
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The Secret Garden

Book and Lyrics by **Marsha Norman**
Music by **Lucy Simon**
based on the novel by Frances Hodgson Burnett

PERFORMANCES:

Friday, August 5, 8:00 PM
Saturday, August 6, 8:00 PM
Sunday, August 7, 2:00 PM
Thursday, August 11, 8:00 PM (free for all MIT students)
Friday, August 12, 8:00 PM
Saturday, August 13, 2:00 PM

All performances will take place in Kresge Little Theater

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\$10 MIT Community, other students, senior citizens, & children
\$15 General public

WARNING: MAY CONTAIN NUTS

SPF: Sun Plus Fun

How to relax outside without getting burned

By Divya Srinivasan
STAFF COLUMNIST

For as long as I can remember, the sun and I have not had the best of relationships. When I was five, my mother would devise every scheme imaginable to excuse me from outdoor gym activities. The reason? She was fearful that my then-alabaster skin would become the burnt-beech color it is now. The notes she attempted to send (I shredded them frantically on the bus) to the gym teacher were priceless. “She has allergy to the sun,” was one of the more ridiculous statements.

Getting a suntan — far from making people look healthy — actually makes people more likely to develop dangerous melanomas.

Well, not entirely ridiculous. When I hit the beach to escape the East Coast blizzard last winter, I came to the sad realization that

the combination of UV light and salt water exposure can catalyze a violent skin rash. From that point forward, I began a modest quest to discover how to avoid wearing a cape or lathering on SPF 2000 every half hour.

Tanning is maligned by the FDA and the International Agency for Research on Cancer as much as it is worshipped by pop culture. The consensus among health organizations is that getting a suntan — far from making people look healthy — actually makes people more likely to develop dangerous melanomas (skin cancers). However, our tanning response to the potent UV rays is the body’s best biological fight against the wavelengths that pierce our skin and mutate our DNA.

The effect we see — darkening of the skin — is caused by the concentration of the pigment melanin around the nuclei of upper skin cells called keratinocytes. Though a protective safe-guard against DNA damage in skin cells, melanin expression is not a fool-proof guard. As Dr. David Fisher, director of the Melanoma Program in Medical Oncology at the Dana-Farber Cancer Institute, states in the Harvard Medical School Family Health Guide, “The trigger for tanning — UV radiation — is absolutely damaging and absolutely carcinogenic ...

but tanning itself appears to be an adaptive response to harmful stress.” Though our body’s ability to tan is a mechanism to fight UV radiation, seeking out these dangerous rays for the purpose of developing that summer glow is counterproductive. The Harvard Medical School guide stresses that “your best bet is to avoid excessive UV light exposure — especially if you’re blond or redheaded and don’t tan well, but also if you do.”

So how can we avoid the harmful after-effects of sun exposure? According to Mayo Clinic, you should avoid sun between 10 a.m. and 2 p.m. — when the sun’s rays are at their strongest — as a first defense. The FDA also recommends checking cosmetics labels for the ingredient alpha hydroxyl acids (AHAs). AHAs increase sun sensitivity and potential risk for sunburn. Labels of cosmetics with AHAs must declare the presence of this ingredient, and the FDA recommends that they carry a sunburn alert statement.

In choosing sunscreen, Mayo Clinic recommends using products with SPF 15 or above and UVA/UVB protection; SPF 20 to 30 is recommended for people with very fair skin. Sun protectants should be applied 30 minutes before sun exposure and be re-applied every hour or two. Lather a liberal amount of sunscreen over your entire face

and exposed parts of your body. The FDA recommends about an ounce of sunscreen for each application — enough to fill a shot glass. Don’t forget to cover places like your lips, the back of your neck, the tops of your feet, and along your hairline. To get the maximum protection, apply a sunscreen with a higher SPF.

Mayo Clinic recommends using products with SPF 15 or above and UVA/UVB protection.

To add to the protective layer, think light: light-colored, light-weight clothing. Protective clothing should be tightly woven — if you can see rays of light piercing the cloth, it will not protect against UV rays. Wear a hat with a 4-inch brim and sunglasses that offer UV protection to prevent damage to your eyesight and facial skin.

Now that I’m armed with a few tools to combat the sun, I may just laugh in the face of my “sun allergy” and soak up some rays. UV, you can’t touch this.



Consumer Reports Best Sunscreen Buys of 2011

The following sunscreens were ranked as *Consumer Reports* Best Buys for 2011 in a May press release. They were ranked based on price, UVA and UVB protection, and protection while submerged in water. Prices shown are the retail prices from each distribution company. Descriptions are from their websites.

Up & Up Sport SPF 30 \$5.24 6 fl. oz. http://www.target.com/ <ul style="list-style-type: none">• Unscented• Water resistant• Available in spray form	No-Ad with Aloe and Vitamin E SPF 45 \$8.49 16 fl. oz. http://www.drugstore.com/ <ul style="list-style-type: none">• Aloe vera and vitamin E keep skin hydrated• Retains SPF for up to 80 minutes in water• Water and sweat resistant	Equate Baby SPF 50 \$5.00 8 fl. oz. http://www.walmart.com/ <ul style="list-style-type: none">• Comes in lotion form• Absorbs and dries quickly• Gentle to the skin
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ILLUSTRATION BY JOANNA KAO — THE TECH

PREFROSH

Celebrating different

Throwing a few curves into my daily routine

By Jessica Yang
CLASS OF 2015

As the perfect summer days slide by, I’m beginning to notice with mild dissatisfaction that I’ve been on autopilot. Have you ever habitually smelled or tasted something, only to be jolted out of the reverie by some unexpected new sensory feedback? Just about every day in high school, I drank chocolate milk with lunch; consequently, when I unconsciously brought golden apple juice to my lips one day, I was shocked by the thin, acidic taste. “Bleh, what happened?” was my instant reaction. It took me a couple moments to remember that the cafeteria had run out of milk.

With too much unstructured free time, I need to be awakened from my routine. In a few weeks just about everything in my life will change, so why am I merely going through the motions of summer? I’ve gone on a fair number of outings — but there must be more to the typical day than waking up, going to work, procrastinating advanced standing exam studying, and going to sleep. There must be more to pre-college summer than thinking about buying dorm

supplies and counting down the days until my FPOP. When analyzing tuition and meal plans for my parents becomes the most interesting thing to do on a Sunday, something is wrong.

With too much unstructured free time, I need to be awakened from my routine.

So one morning, I got up and did something different. Instead of drinking chocolate milk, I had some apple juice. And instead of slinging my blue backpack over my left shoulder and going to work, I grabbed my tote bag and went to Six Flags. My close friends and I had an indescribably amazing time twisting, looping, and pretending to fly on the Batwing coaster.

In celebration of magical changes — past and future — here are a couple other things I’m doing differently.

At the lab, I tried to make and recycle my own lab consumables. My mentor says

that summer interns like myself have been spoiled — at our government labs, reagents and supplies can be bought instantly with the flash of a credit card or ordered online without a second thought. My mentor regales me with horror stories from his days as a young PhD student in a university lab when he salvaged defective equipment, was constantly making protein gels and materials from scratch, and had to wash out and reuse pipettes. Since I’m never sure when he’s joking, I decided to prepare for the probably unlikely possibility that I will have to pinch pennies to the extreme at a UROP: I washed out, wrapped, and re-used pipettes for a day. I also attempted to make an SDS gel (a thin, film-like material used to detect the presence of proteins), but the finished product could not compare with the nice, neat, fully-functional ones manufactured by biotech companies.

At the blood bank, I donated platelets and plasma instead of blood. The phlebotomist slid two gleaming steel needles three inches into my elbows. The benefit to a patient in need is probably the only reason a perfectly healthy person would sit for two hours with catheters taped to forearms

and twin blood pressure cuffs, connected to an evolved centrifuge selectively taking components of blood and returning the rest with a mixture of anti-coagulants and saline.

When analyzing tuition and meal plans for my parents becomes the most interesting thing to do on a Sunday, something is wrong.

Other moderately atypical things I’m doing include buying a Macbook Air instead of a Dell, mixing green and red grapes together (inspired by an old episode of *Glee*), and getting my waist-length hair cut. I’m looking forward to the Freshman Leadership Program FPOP and to moving in with some awesome roommates in Baker House. To the upcoming plethora of new experiences at MIT, here I come!

Have humorous commentary about a campus topic?

Send 500 words and a pic to cl@tech.mit.edu.



An aerial photograph of the University of Illinois at Urbana-Champaign campus during sunset. The Old Main building, a large, historic structure with a prominent central dome, is the focal point in the foreground. To its left, a large, green, rectangular field, likely a sports field, is visible. The campus is surrounded by dense green trees. In the background, the city of Urbana is visible, with various buildings and a river winding through it. The sky is filled with dramatic, dark clouds, and the sun is low on the horizon, casting a warm, golden glow over the entire scene.

The roof of the Green Building (Building 54) offers a unique view of MIT, Boston, and Cambridge. The evening sun beamed light through the thick clouds, lighting the dome above Lobby 10 and creating a stunning view. The mountainous, green horizon separated the sky and the city. In post-processing, a graduated neutral-density filter was applied to balance the dynamic range.

Aperture: <i>f/4</i>	Sensitivity: ISO 200
Exposure Time: 1/250 sec.	Effective Focal Length: 17 mm

Demon's Souls: Turning boys into men

Devilishly hard RPG pulls no punches with players

Fail to dodge an attack. Die. Walk into an “atmospheric” fire. Die. Fall off a castle wall. Die. Beat a boss, then walk into a dark tunnel and get ambushed by dogs. Die.

Demon's Souls (yes, complete with that tongue-twisting double "s") is a brutally difficult game developed by From Software and published by Sony Computer Entertainment exclusively for PlayStation 3. The game seems to have been created as a retort to people griping that modern games don't have the grueling difficulty and body count of old games.

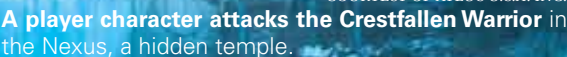
As the opening explains, King Allant the XII made a Faustian bargain with a being known as the Old One to gain power and bring prosperity to his kingdom of Boletaria.

At character creation, you get to choose between ten different classes, each suiting a particular play style. I favor the **Royalty** class, as they start out with magical attacks and **Magic Power** regeneration, which suits my inexperienced combat style of sniping from a distance. Others may prefer the **Knight's** heavy hitting or the **Thief's** amazing item drop rate. No matter what class you start in, you can customize your characters by spending souls gained by killing enemies.

The game's narrative is unhampered by long cutscenes or romantic subplots; rather, the sometimes tedious but ultimately rewarding combat system is where the game truly shines. Attacking and parrying use up stamina, leaving you vulnerable while the meter regenerates. Each enemy has a unique warning sound and attack pattern, and the monsters are quite innovative, ranging from a shielded slime

The game's narrative is unhampered by long cutscenes or romantic subplots; rather, the sometimes tedious but ultimately rewarding combat system is where the game truly shines.

The Old One inevitably betrays him, releasing a colorless fog and soul-stealing demons into the land. Many heroes have tried to rescue the kingdom, but all have perished. So, like a true hero, you head blindly into the same fog, either saving the kingdom or falling prey to the lust for soul power. This plot isn't groundbreaking, or even unique, but merely serves as a garnish for the inventive levels and challenging combat.



with a spear to flying stingrays raining death from above. Ambushes are common, although after playing through a level many times, you memorize where all the enemies hide. Once you have mastered the combat system, you can parry and stab an enemy with panache, earning a satisfyingly bloody animation.

Of course, before you master combat, you're going to die. A lot. When you shuffle off this mortal coil with an arrow in your chest, you start back at the beginning of the level in Soul Form, which caps your health at half. That's right — dying makes the game harder. And the game constantly saves, meaning there's no turning off the game to restore yourself to life. The only way to revive yourself is to kill a boss, use a semi-rare item, or enter another player's game.

Online play is unique in that you seldom interact directly with other players. Instead, you see the ghostly images of other players in the level, and you can touch their bloodstains to see their final moments before death. They can also leave messages on the ground, both helpful and spam-full. In the rare case you do meet another player, they can be either a helpful Blue Phantom or a murderous



In the Stonefang Tunnel, a rock worm incinerates the players while flying bearbugs hover around it.

Black Phantom.

From the corpses of enemies, you can collect Hardstone, Mercurystone, Moonlightstone, Cloudstone, and a plethora of other ridiculous stones to upgrade your weapon, allowing you to plow through mobs.

Once you defeat the first boss, a tarry demon called Phalanx, the rest of the world opens up to you. *Demon's Souls* particularly excels in level design, creating atmospheric and challenging worlds. There's the Boletarian Palace, guarded by two dragons that burn players without a sense of timing; Stonefang Tunnel, a system of mines that descends to a pool of magma; the Tower of Latria, a gigantic prison full of brain-eating Mindflayers; the Shrine of Storms, guarded by skeletons; and the Valley of Defilement, full of plague and rickety wooden platforms from which to fall.

The greatest complaint I have about the game is the targeting system, used for ranged weapons and magic. It is difficult to pick out single enemies in a crowd, which will quickly drive you to profanity as your character shoots the furthest enemy and gets stabbed by the closest. In addition, locking on can cause awkward shifts in camera angle as the enemies move. Another gripe is that you can sometimes receive damage from attacks that did not appear to hit — especially annoying for one-hit-kill attacks.

The greater the challenge, the sweeter the reward. Whether it's backstabbing an enemy for massive damage or striking the finishing blow on a boss, mastering *Demon's Souls* proves your mettle as a gamer, all for only \$20. My final words of advice are "buy more items." You're going to need them.

After months, JSTOR harvesting ended in Jan. arrest

Swartz, a Harvard Ethics fellow, faces up to 35 years in prison and \$1 million in fines

Swartz, from Page 1

new computer was put to use on the same day, registered on MIT’s network as a guest. When prompted, Swartz provided the name “Gary Host,” which he had abridged to form the machine’s client name, “ghost laptop,” according to the indictment.

He put his newly-assigned MIT IP address (18.55.6.215) to use the next day, the indictment says, running a program on the laptop that downloaded JSTOR articles at a staggering rate. While the indictment describes the program as being smart enough to avoid being automatically flagged by JSTOR’s systems, the strain it put on JSTOR’s servers was enough to have impaired other research institutions attempting to access the materials. It wasn’t long before JSTOR and MIT took notice. That evening, JSTOR blocked the IP address of the laptop, preventing it from accessing their archives.

This setback didn’t deter Swartz for long, according to the indictment. The next day the “ghost laptop” was assigned a new IP address, 18.55.6.216, and continued to rapidly download JSTOR materials. JSTOR again detected the activity, and this time took a more drastic measure: noticing that the offender’s two IP addresses had begun with 18.55.6, JSTOR blocked a broad range of similar MIT IP addresses. This action denied many MIT affiliates access to JSTOR for three days.

JSTOR blocked a broad range of MIT IP addresses, denying many MIT affiliates access for 3 days.

By the time JSTOR reversed its ban on that MIT IP address range on Sept. 29, MIT had taken a more targeted approach to keeping the offender off the network: blocking his laptop’s MAC address. A MAC address is a sequence of characters which uniquely identifies a machine’s hardware. Though it is meant to be a permanent identifier, it can be changed — a trivial operation for someone with Swartz’s expertise. The Acer laptop was registered again on MIT’s network less than a week later, still under the name “Gary Host” but with a slightly altered MAC address.

Grace Host

“Grace Host” first made her appearance on MIT’s network on Oct. 8. That was the name, states the federal indictment, that Swartz provided when he registered a second



FRED BENENSON

machine, this time a MacBook, as a guest on the network. Together, Grace and Gary Host downloaded JSTOR articles at such an astounding pace that several of JSTOR’s servers crashed.

This time, JSTOR’s response was far more severe. All of MIT was denied access to the JSTOR archives for several days. When access was restored days later, the indictment suggests that Swartz used his newfound knowledge of MIT’s networking infrastructure to take a new approach.

The restricted basement wiring closet

In the basement of Building 16 there is a wiring and telephony closet, known as Room 16-004t. Between November and December 2010, Aaron Swartz accessed this room and hard-wired his Acer laptop into the network, assigning himself two IP addresses. The computer was hidden under a cardboard box in the closet, and it remained there undetected for weeks. In this time it downloaded over 2 million JSTOR articles, more than 100 times the number of legitimate JSTOR downloads at MIT during that time period.

It was Jan. 4, 2011, when IS&T discovered the machine beneath the cardboard box, according to the officer report released by the Cambridge Police Department. By 10:30 a.m. an MIT police officer was on the scene, and before long he was joined by Cambridge police detective Joseph Murphy and U.S. Secret Service agent Michael Pickett. The indictment states that the laptop was running a script called “keepgrabbing.py,” which was responsible for downloading the JSTOR articles. Fingerprints were lifted from the laptop and hard drive, and then the detective, the officer, and the agent left Building 16.

The laptop and hard drive re-

mained under the cardboard box in 16-004t. However, it was now accompanied by a hidden network camera, installed by IS&T.

Less than five hours later, a “white male, dark or black shoulder length wavy hair, wearing a dark coat, gray backpack, jeans with a white bicycle helmet” was observed on camera entering 16-004t, carrying what looked like a hard drive. When the man matching Swartz’s description returned again on Jan. 6, 2011, he was spotted by the MIT police officer monitoring the video feed. But by the time police units arrived at 16-004t, Swartz had disappeared, along with his laptop and hard drives.

Demand Progress, which Swartz founded, is currently rallying support for Swartz with an online petition signed by over 35,000 people.

The arrest of Aaron Swartz

According to the officer report and a statement released by the MIT Student Processing Board (SIPB), Swartz didn’t leave MIT’s campus immediately on Jan. 6. His next stop was the fifth floor of MIT’s Student Center (Building W20). “Around 1:30 p.m., a man matching Aaron Swartz’s description visited the SIPB office. He left shortly afterward, around 1:50 p.m.,” wrote David Wilson, SIPB Chairman, in an email to *The Tech*. “[At 4:20 p.m.], the MIT Police and representatives of IS&T came by and removed a laptop and external hard drive that had been hidden underneath a table. At the time, SIPB did not know where the machine had come from, nor was SIPB informed of the reason for its removal,” Wilson said. Though Swartz was not affiliated with SIPB, the student group welcomes visitors to use their office if there are members present.

It was 2:11 p.m. on Jan. 6 when Swartz was spotted on a bicycle on Massachusetts Avenue by an MIT police officer, according to the officer’s report. The report states that when he encountered Captain Albert Pierce of the MIT Police Department, Swartz jumped off his bike and ran down Lee Street, a few blocks north of City Hall in Central Square. He made it approximately 400 feet before being handcuffed and charged with breaking and entering. Though he refused to give the officers his name, a USB drive found on his person left little doubt that this was the man they were after — it contained “keepgrabbing2.py.”

Legal ramifications

Swartz faces up to 35 years in prison and up to \$1 million in fines if he is convicted of the following charges: wire fraud, computer fraud, unlawfully obtaining information from a protected computer, and recklessly damaging a protected computer. The next hearing will be on Aug. 8. He is out on \$100,000 bail.

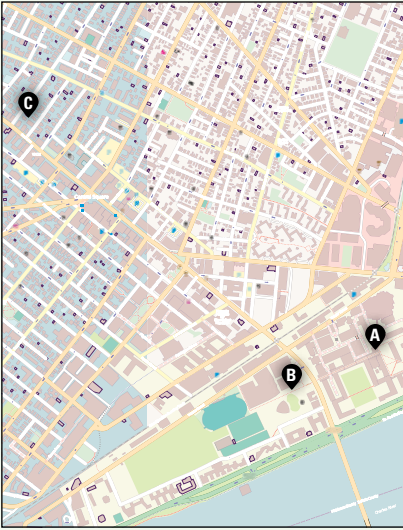
These charges come despite JSTOR’s not pressing charges. “The criminal investigation and today’s indictment of Mr. Swartz has been directed by the United States Attorney’s Office,” said a statement released by JSTOR on July 19. “It was the government’s decision whether to prosecute, not JSTOR’s. As noted previously, our interest was in securing the content. Once this was achieved, we had no interest in this becoming an ongoing legal matter.”

Demand Progress, a group which Aaron Swartz founded, runs online campaigns to fight online censorship. The organization is currently rallying support for Swartz with an online petition that has been signed by over 35,000 people.

This isn’t the first time Swartz has run into trouble with the government for excessive downloading. This case is reminiscent of an incident in 2008, when Swartz was involved in the downloading of hundreds of thousands of legal documents from the Public Access to Court Electronic Records and releasing them for free. Though it led to an FBI investigation, Swartz was not indicted.

Earlier in 2008, Aaron Swartz authored a document titled “Guerilla Open Access Manifesto.”

“We need to download scientific journals and upload them to file sharing networks. We need to fight for Guerilla Open Access,” said Swartz in the manifesto. “With enough of us, around the world, we’ll not just send a strong message opposing the privatization of knowledge — we’ll make it a thing of the past. Will you join us?”



A timeline of Aaron Swartz’s alleged activity

As described by the federal indictment

September 2010

24 Swartz purchases Acer laptop to be used for his JSTOR downloading operation.

25 Laptop begins to download JSTOR articles very rapidly. JSTOR blocks his IP address that evening.

26 Swartz starts downloading JSTOR articles with a new IP address. JSTOR responds by blocking a range of MIT IP addresses for 3 days.

27 MIT blocks the MAC address of the laptop.

29 JSTOR removes ban on MIT IP address range.

October 2010

02 “Gary Host” reappears on MIT network with a new MAC address.

08 A MacBook is registered to the MIT network with the name “Grace Host.”

09 Gary and Grace Host download articles from JSTOR at a rate which crashes some JSTOR servers. MIT blocked from accessing JSTOR for several days.

January 2011

04 Swartz is spotted leaving 16-004t. IS&T discovers his equipment in the closet, installs a hidden webcam.

JAN 06

THE DAY OF SWARTZ’S ARREST

12:32 p.m. A Officer monitoring network camera sees Swartz enter 16-004t. By the time officers arrive at Building 16, he was gone.

~1:30 p.m. B Swartz arrives at SIPB, hides his laptop and hard drive.

2:11 p.m. C Swartz arrested at 24 Lee St., after a short chase.



CONNOR KIRSCHBAUM—THE TECH

On Jan. 6, 2011, Aaron Swartz was seen exiting Room 16-004t, which he had allegedly been using to download millions of articles from JSTOR.



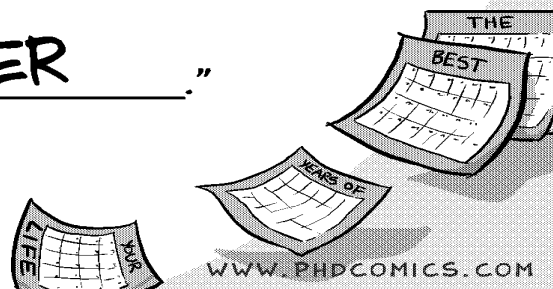
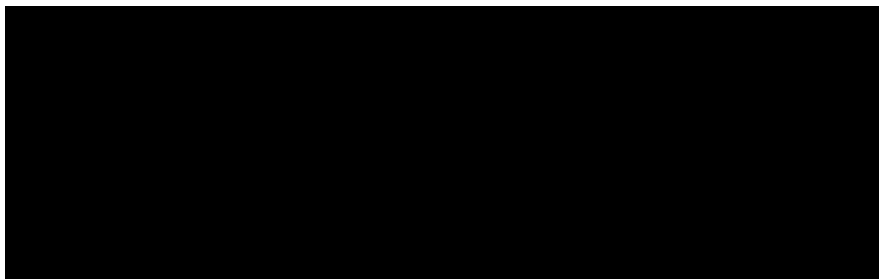
JORGE CHAM © 2011



A SURPRISINGLY DIFFICULT QUESTION TO ANSWER

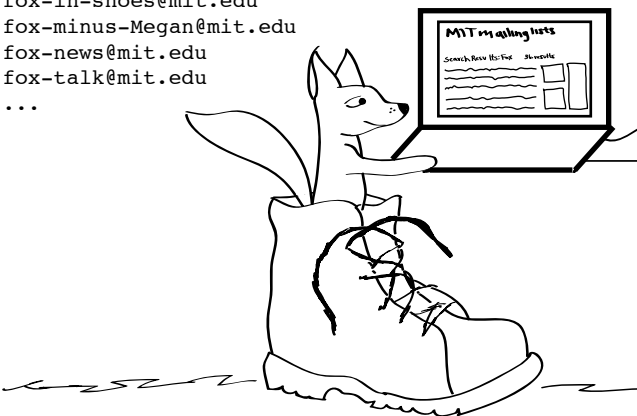
"WELL, IF YOU GO BY CALENDAR YEAR, THIS IS MY _____ YEAR, BUT IF YOU GO BY ACADEMIC CALENDAR YEARS IT'S BEEN _____, UNLESS YOU COUNT THAT SUMMER I CAME EARLY, THEN IT'S BEEN _____ YEARS, WHICH MEANS PHYSICALLY I'VE BEEN ON CAMPUS _____ YEARS, BUT, I DIDN'T OFFICIALLY START THE PHD PROGRAM UNTIL _____, SO I GUESS TECHNICALLY THIS IS MY _____ YEAR? ALTHOUGH HONESTLY IT FEELS

LIKE FOREVER ."

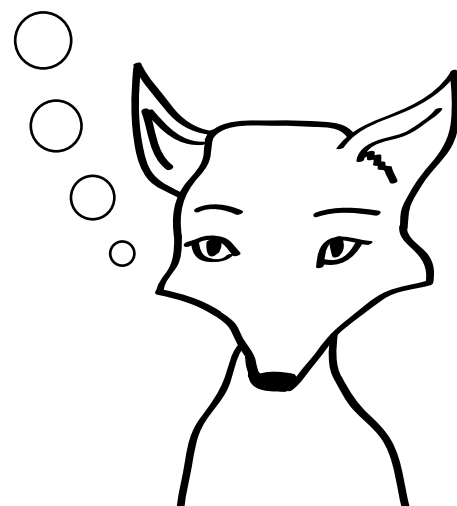
[illegible]

Search Results for 'Fox': 36 hits

```
fox-e-mamas@mit.edu
fox-in-shoes@mit.edu
fox-minus-Megan@mit.edu
fox-news@mit.edu
fox-talk@mit.edu
...
```



Someone stole my mailing lists... like a FOX!



Solution, page 14

- 1 Droops
- 5 Benchwarmer
- 10 Dull
- 14 Spiritual guide
- 15 Pageant trophy
- 16 Tot's first word, often
- 17 Electrical worker's action
- 20 Stuff to capacity
- 21 Like the healthiest corned beef
- 22 White House advisory gp.
- 23 "Don't tase me, __!"
- 24 Discount retailer's action
- 32 Virginia, for one
- 33 Sits on the sill, as a pie
- 34 Absorb, with "up"
- 35 Exaggerated publicity
- 36 Type of servant or engineer
- 37 Ready for picking
- 38 "You __ here": mall map words
- 39 Arrested
- 40 Parson's home
- 41 Feuder's action

44 In the past
45 Actress MacGraw
46 Traffic jam causes
50 Toronto skyline landmark
54 Accused speeder's action
56 On a single occasion
57 Two-time U.S. Open winner
Fraser
58 Opposite of aweater
59 "The ___ the limit!"
60 Freezing cold
61 Bakery offerings

- 1 Bilko and York: Abbr.
- 2 Subtle emanation
- 3 "True ___": John Wayne film
- 4 Rotate face-up, as one's
palm
- 5 Pain in the side
- 6 Movie
- 7 Tabloid
- 8 Russia's ___ Mountains
- 9 America's pastime
- 10 Key of Beethoven's Ninth

- 11 Distance divided by time
- 12 Gremlin and Pacer
- 13 Capital of Thailand?
- 18 Out of fashion
- 19 Time irregularities, in sci-fi
- 24 Prefix with foam
- 25 Boutonniere site
- 26 Cupcake topper
- 27 Spanish sweetheart
- 28 Continuing to operate
- 29 "Of Thee ___"
- 30 Thicket
- 31 Olympics sword
- 32 Peacock Throne occupant
- 36 Challenging the rapids,
maybe
- 37 Police cruiser
- 39 On the money
- 40 Poly- equivalent
- 42 Sprints
- 43 Went on a tirade
- 46 Corp. money bigwigs
- 47 Place where the starts of
this puzzle's four longest
answers result in a penalty

1	2	3	4		5	6	7	8	9		10	11	12	13
14					15						16			
17				18						19				
20								21						
			22					23						
	24	25				26	27	28				29	30	31
32						33						34		
35					36						37			
38				39						40				
41			42						43					
			44					45						
46	47	48				49		50				51	52	53
54							55							
56					57						58			
59					60						61			

48 Part of CIA: Abbr.
49 Dagger of yore
50 Colombian cartel city
51 How many employees

are pd.
52 Hard-to-find shoe width
53 Numbered hwys.
55 Word before Friday or pal

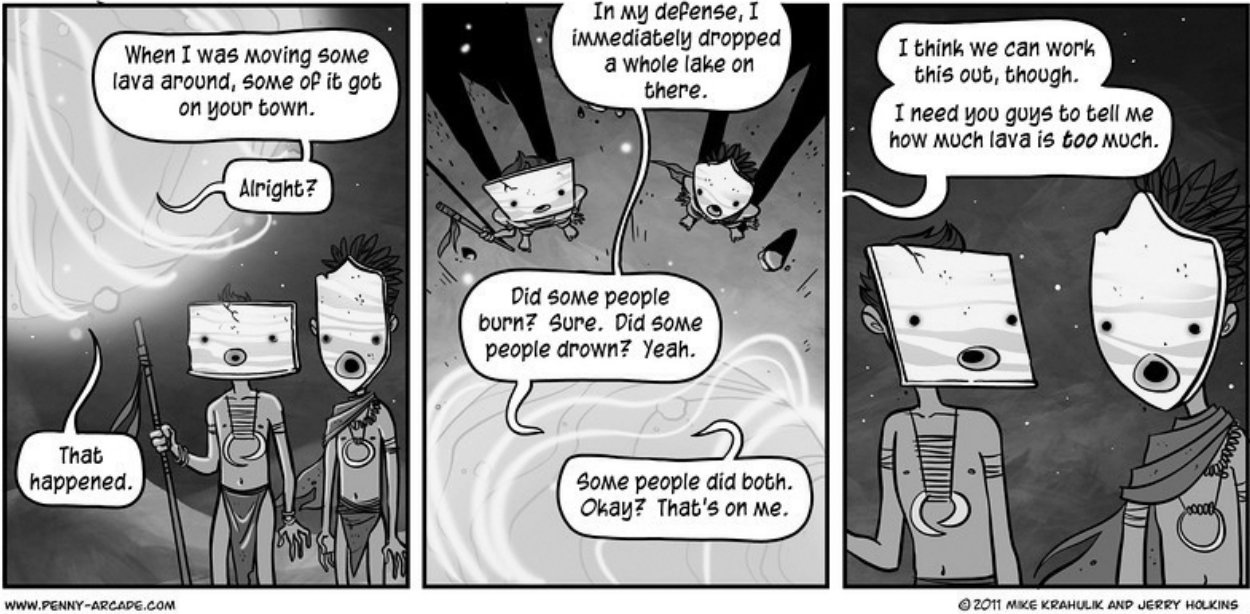


by Jerry Holkins
and Mike Krahulik

The Fire



Accountability



Sudoku

Solution, page 14

	7	5				1	4	
4	8		3		7		2	
		2						7
				7	3		6	
			1		8			
	5		6	2				
5						4		
	3		9		4		1	2
	1	4				5	3	

Instructions: Fill in the grid so that each column, row, and 3 by 3 grid contains exactly one of each of the digits 1 through 9.

Techdoku

Solution, page 14

160x		70x		3+		12x	
4-		3-		6+		13+	7
	1		56x		6		120x
15+				5-	9+		36x
	24+				56x	19+	
4-			18+				6+
	144x			36x			84x
4+		18x			80x		
	15+		21x			20x	8

Instructions: Fill in the grid so that each column and row contains exactly one of each of the numbers 1–9. Follow the mathematical operations for each box.

Massachusetts lottery woes

Savvy players with capital play smart, win big

By **Andrea Estes**
and **Scott Allen**
THE BOSTON GLOBE

SUNDERLAND — Billy’s Beer and Wine sold exactly \$47 worth of lottery tickets the day before Marjorie Selbee arrived, just another sleepy day for the liquor store in this tiny Western Massachusetts town. But from the moment the 70-something woman from Michigan entered the store early July 12, Billy’s wasn’t sleepy anymore.

Over the next three days, Selbee bought \$307,000 worth of \$2 tickets for a relatively obscure game called Cash WinFall, tying up the machine that spits out the pink tickets for hours at a time. Down the road at Jerry’s Place — a coffee shop in South Deerfield — Selbee’s husband, Gerald, was also spending \$307,000 on Cash WinFall. Together, the couple bought more than 300,000 tickets for a game whose biggest prize — about \$2 million — has been claimed exactly once in the game’s seven-year history.

But the Selbees, who run a gambling company called GS Investment Strategies, know a secret about the Massachusetts State Lottery: For a few days about every three months, Cash WinFall may be the most reliably lucrative lottery game in the country. Because of a quirk in the rules, when the jackpot reaches roughly \$2 million and no one wins, payoffs for smaller prizes swell dramatically, which statisticians say practically assures a profit to anyone who buys at least \$100,000 worth of tickets.

During these brief periods — “rolldown weeks” in gambling parlance — a tiny group of savvy bettors — among them highly trained computer scientists from MIT and Northeastern University — virtually take over the game. Just three groups, including the Selbees, claimed 1,105 of the 1,605 winning Cash WinFall tickets statewide after the rolldown week in May, according to lottery records. They also appear to have purchased about half the tickets, based on reports from the stores that the top gamblers frequent most.

The Selbees have already claimed nearly \$1 million in prize money this year, entirely in tickets valued at \$802 to \$24,821.

“Cash WinFall isn’t being played as a game of chance. Some smart people have figured out how to get rich while everyone else funds their winnings,” said Mohan Srivastava ’79, an MIT-educated statistician who gained fame in gambling circles when he found a flaw in a Canadian scratch ticket game that allowed him to pick the winners more than 90 percent of the time.

It is hard to say precisely how much each gambler has won because they have a year to claim prizes and the lottery does not track winning tickets of less than \$600. But the Selbees have already claimed nearly \$1 million in prize money this year, entirely in tickets valued at \$802 to \$24,821. Their final haul will undoubtedly be considerably larger.

Srivastava calculated that a gambler who bought 200,000 Cash WinFall tickets during four rolldown weeks in a year would win enough to cover the \$1.6 million investment and earn a profit of \$240,000 to \$1.4 million — without ever winning the jackpot. Srivastava’s calculations suggest that the top five groups and individuals

playing Cash WinFall collectively win back the cost of their tickets plus \$1 million to \$6 million in profits each year from about 12 days of gambling.

On the other 350-plus days of the year, less-sophisticated Cash WinFall players generally lose money, their losses building up the multimillion dollar pool that is ultimately paid out during the rolldowns.

The high-stakes players’ dominance of Cash WinFall is putting an uncomfortable spotlight on the state lottery, which has known about the phenomenon for years but only recently started to police the game under new state Treasurer Steven Grossman.

Cash WinFall is so lucrative to stores that sell the tickets — which get a commission equal to 5 percent of the sales — that some are tempted to break the rules to accommodate the high rollers’ needs. A *Globe* reporter saw Marjorie Selbee behind the counter at Billy’s, apparently operating the Cash WinFall machine in violation of a lottery rule that store employees alone can work the ticket dispenser.

Within days, the lottery suspended ticket-selling privileges at Billy’s, Jerry’s, and five other stores after agency inspectors discovered violations, such as printing out Cash WinFall tickets for bettors who were not there. However, lottery officials stressed that stores did not tamper with the machines that generate the tickets or otherwise aid the gamblers.

“It is very important to note that their actions in no way compromised the operation or integrity of the game,” said lottery officials in a statement.

More broadly, some question why the state would sponsor a game that is vulnerable to betting tactics that funnel most of the prize money to just a few.

“It’s a private lottery for skilled people,” said Secretary of State William Galvin, who has been scrutinizing lottery games since he ran for treasurer 20 years ago. “The question is why?”

But lottery officials say the game is successful, generating a respectable \$11.8 million in profits in 2011 even though the agency sometimes pays out more money than it takes in during the rolldown weeks. Lottery officials say they more than offset the cost of rolldown weeks over the rest of the year.

“It’s a niche game for a different audience,” explained Paul Sternburg, the lottery’s executive director. “You want to bring in as many players as possible. Some people chase a huge jackpot. Others are looking at odds.”

One thing is certain, however: The players who invest big money in Cash WinFall do not want to talk about it, refusing to discuss the game or explain the secret of their success. Mark Fettig of Tennessee, one of the top 10 winners during the May rolldown week, urged the *Globe* not to write a story at all, saying “it would be immoral” to attract more people to Cash WinFall and potentially dilute the winnings of current players.

Savvy players Yuran Lu ’05, a 28-year-old MIT graduate who majored in electrical engineering, computer science, and math, seems far removed from the blue-collar image of a lottery player. This year’s second-leading Cash WinFall winner — his Random Strategies Investments has cashed in more than 500 winning tickets worth a total of \$765,168 so far — Lu was on a five-week vacation in Europe during the rolldown week in July, so he said other members of his group had to buy tickets for him.

A native of China who moved

to northern Maine as a child, Lu had a “distinguished career even by MIT standards,” according to an April 15, 2005, *Tech* article. His academic record included math, computing, and engineering contest victories, while his whimsically named “Kamikaze Puppy” placed second in a robot competition.

Lu also developed a taste for high-tech pranks, *The Tech* reported: He once collected more than 600 student passwords to the MIT computer system and sent them to the administration just to show them how easy it was.

The Selbees, by contrast, formerly ran a corner store in Evert, Mich., one of the few states that has offered a game similar to Cash WinFall. That game was discontinued in 2004, the same year the Selbees formed their gambling company. The next year, the couple began making treks to Massachusetts to play Cash WinFall, according to lottery records.

Sophisticated players do not actually want the jackpot to be paid out — unless it is going to them.

The couple would not speak to a reporter who visited the stores July 12 when Marjorie Selbee was upset to learn that her Cash WinFall earnings were public information.

Lu initially agreed to talk about his gambling company, formed with MIT friends last year, but he subsequently did not return phone calls. However, available information suggests he approached Cash WinFall like a research project, asking the lottery for information about the other big players last year and using a social media website in December to ask questions about how “to determine the optimal time to buy a lottery ticket.”

Secrets of the game

And winning at Cash WinFall, it turns out, is all about timing. On one level, the game is simple: If the numbers on six randomly selected balls match the six on your ticket, you win the jackpot. The game also doles out lesser prizes for matching five balls down to as few as two (free ticket). Since its creation in 2004, the game has not exactly caught the gambling public’s imagination: Only one person has ever won the 1-in-9.36 million odds jackpot (one of the big-money players), and sales are stagnant, accounting for only about 1 percent of lottery revenues.

But Lu, like the Selbees and a few others, focused on a feature of the game that is extremely rare in the United States, according to gambling authorities contacted by the *Globe*. The jackpot grows gradually over time from a low of \$500,000 to a limit of \$2 million to \$2.5 million; when the limit is reached and no one claims the big prize, the top prize money is poured into the smaller prizes — or “rolled down” — raising the odds of a significant payout.

During normal weeks, picking five out of six numbers correctly will generate a \$4,000 prize, but the prize rises to \$20,000 to \$40,000 during rolldowns, depending on how many winning tickets are cashed. Fewer winning tickets translates to larger payouts: During Cash WinFall’s first year, the prize for picking five numbers correctly once exceeded \$100,000.

Likewise, the prize for picking four of six numbers swells from \$150 to \$800 or even \$1,000, while the prize for picking three num-

Prizes, Page 14

New Mass. lottery restrictions in place

Regulations surround high-stakes Cash WinFall players

By **Andrea Estes**
THE BOSTON GLOBE

State Treasurer Steven Grossman severely restricted yesterday the number of Cash WinFall lottery tickets any store can sell in a day, closing a loophole that has allowed a handful of high-stakes gamblers to win most of the prizes.

Just three gambling companies collected 1,105 of the 1,605 Cash WinFall prizes statewide after a May drawing, each following a strategy that involved buying hundreds of thousands of dollars worth of the \$2 tickets at selected stores over a few days.

Under the new rules, no store will be allowed to sell more than \$5,000 worth of Cash WinFall tickets in a single day, making it much harder for the gamblers to continue their high-volume purchases.

Grossman also said that Cash WinFall, which has seen declining sales since it was introduced in 2004, will be phased out next spring as part of the normal rotation of games.

“We want to do everything we can to make sure the integrity of the lottery is not questioned in any way, shape, or form,” he said, adding that restricting sales at each store will level the playing field among players.

Grossman was reacting to a Sunday *Globe* story that said that sophisticated gamblers had found a quirk in Cash WinFall’s rules that virtually guarantees they will make a large profit if they buy more than \$100,000 worth of tickets at certain times of the year when prizes are four to 10 times larger than normal.

Those times, called “rolldown weeks,” take place when the Cash WinFall jackpot grows to roughly \$2 million and no ticket wins the jackpot by matching six randomly chosen numbers. The jackpot money is then distributed among the secondary prize-winning tickets, increasing the payoff. For instance, the payoff for matching five numbers rises from \$4,000 to a range from \$17,500 to as much as \$134,767, depending on how many winning tickets are sold.

Several groups — two of them led by highly trained computer scientists from MIT and Northeastern University — formed gambling companies and began pouring hundreds of thousands of dollars into Cash WinFall, a phenomenon lottery officials first noticed in 2005.

The top five groups and indi-

viduals playing Cash WinFall collectively win back the cost of their tickets plus \$1 million to \$6 million in profits each year during rolldowns, without ever winning the jackpot, according to Mohan Srivastava ’79, a Canadian statistician who found a flaw in a Canadian instant game that allowed him to detect winning tickets without scratching them.

News of the quirk in Cash WinFall brought immediate accusations that the game gave an unfair advantage to well-financed players. Overall, the lottery makes a profit from the game, but lottery officials admitted the big payouts made during rolldown weeks are, in effect, subsidized by people who bet at other times when the payoff for winning is far less favorable.

“I’ve suspected right along that this type of betting was occurring,” said Cash Winfall player Peter McPhail, who has urged the Lottery to change the game’s rules. “Trust me, small-time players always need divine intervention!”

After a day of defending Cash WinFall to the media, Grossman intervened late yesterday afternoon by making it harder for the big-time gamblers to obtain enough tickets to virtually guarantee a profit.

Grossman made it harder for the big-time gamblers to obtain enough tickets to virtually guarantee a profit.

For several days leading up to a rolldown, the bettors monopolize lottery machines at about a dozen stores, buying as many tickets as time allows. In the tiny towns of Sunderland and South Deerfield, Gerald and Marjorie Selbee of Evert, Mich., who run GS Investment Strategies, bought more than \$600,000 in tickets in three days in July.

In all, the lottery said that six stores statewide received permission to sell at least \$100,000 worth of Cash WinFall tickets daily during the July rolldown while another five got permission to sell \$36,000 to \$75,000.

Under Grossman’s new rules, big-time gamblers would have a tough time maintaining their current level of play. The Selbees, for

Restrictions, Page 14

The Science Wars

STATUS REPORTS

Advanced analysis of world affairs and world events. Learn about the various dimensions of existence and their battlefields.

Website/BLOG titles include:

- >North Pole magnetic data field computer war
- >The TIME MACHINE of Computer Earth
- >Galileo the DEFENDER (of Planet Earth)
- >DNA genetics clinical trial – Benjamin Lewin
- >The quantum physics FLAVOR war casualties

Keywords can be used on Internet Google/etc:

- >Herb Zinser’s Science Wars
- >American Science Wars
- >British Science Wars
- >Math and Physics Science Wars

